R. VOSE.

Car Spring.

No. 39,314.

Patented July 21, 1863.

Fig. 3.

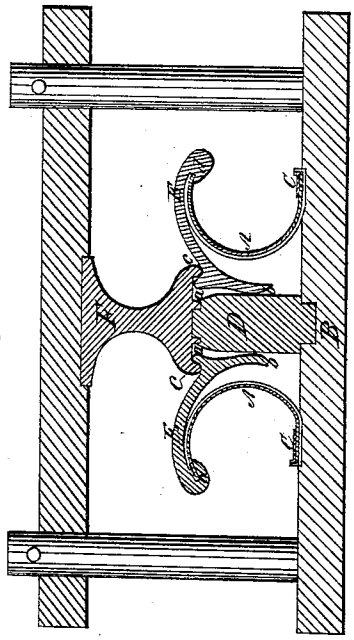


Fig. 4.

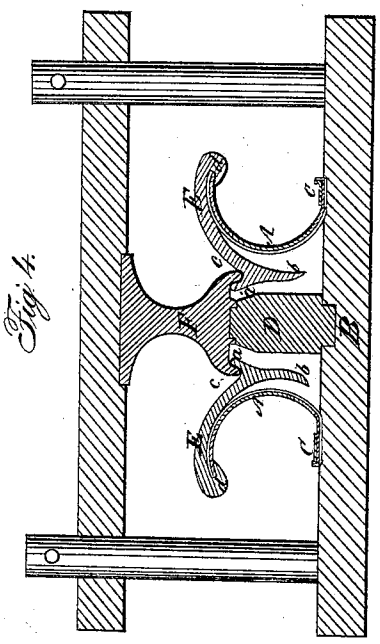


Fig. 1.

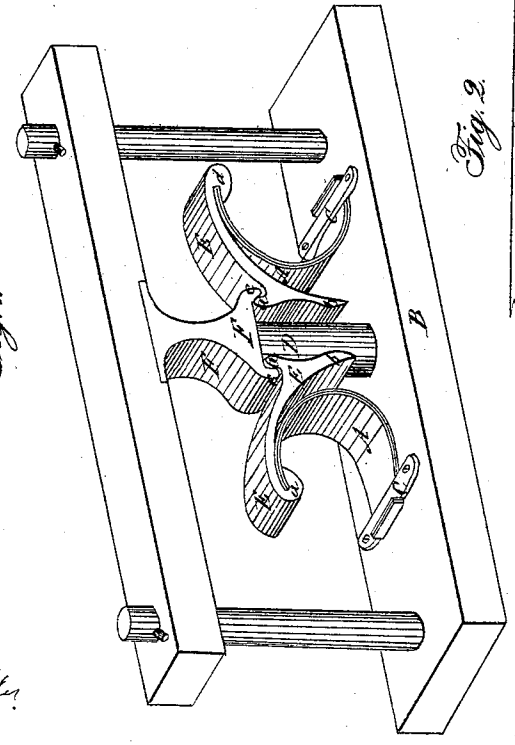
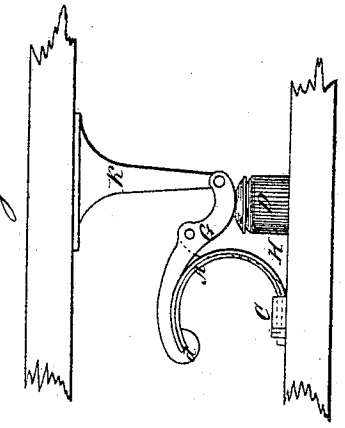


Fig. 2.



Witnesses:

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AM. PHOTO-LITHO. CO. N.Y. (OSBORNE'S PROCESS.)

UNITED STATES PATENT OFFICE.

RICHARD VOSE, OF NEW YORK, N. Y.

IMPROVEMENT IN RAILROAD-CAR SPRINGS.

Specification forming part of Letters Patent No. 39,314, dated July 21, 1863.

To all whom it may concern:

Be it known that I, RICHARD VOSE, of the city, county, and State of New York, have invented a new and useful Improvement in Springs for Railroad-Cars and other Vehicles; and I do hereby declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings, forming a part of this specification, and in which—

Figure 1 is a perspective view of my improved double spring; Fig. 2, an elevation of the spring in its simple form; Fig. 3, a longitudinal vertical section of the double spring illustrated in Fig. 1, and Fig. 4 a similar sectional view of the same when under pressure.

Similar letters indicate like parts in each of the drawings.

The important and novel feature of my spring is the peculiar mode of eliminating the resilient power of a curved elastic plate by a movement which, bending it back upon itself, straightens the upper portion thereof while it compresses it in its lower curve.

My improved spring is formed of one or more curved elastic plates, A A, secured at their lower ends to a bed-plate or beam, B, by means of cross-straps C C, or other suitable device. Their upper or vibrating ends support the outer ends of inelastic arms or plates E E, Figs. 1 and 3, which may be secured thereto by means of receiving grooves or pockets *d d*, as illustrated in Figs. 3 and 4, and which are so curved as to bend back over the spring in an arch whose curve is greater than that formed by the spring-plates.

Where the spring is used singly, as illustrated in Fig. 2, the curved operating-arm G, to which it is secured, is pivoted at or near its center to a suitable standard, H, and its inner or bearing end is hinged to a suitable pillar or vertical bearing-plate, K, upon which the load or weight to be carried is placed. The resistance of the spring so arranged when drawn back by the elevation of the end of the lever to which it is attached is thus made to support the load with the elasticity desired. When, however, my improved springs are to he used in pairs or series, as it is my purpose generally to apply them, they are to be placed with their convex surfaces opposite or facing each other inwardly, and the operating arms or bearers E E, which they support, instead of being pivoted, as in G, Fig. 2, are left loose and free to support a central bearing-block, F, Figs. 1, 3, and 4. For this purpose flanges *a a* (see Fig. 1) are formed upon the upper curved surface of the bearers E E at a point removed from their inner unconfined ends *b b* about one-third of their whole length, so that when the springs are not under pressure these bearing-flanges upon the operating-arms E E will be very nearly in a vertical plane with their inner ends, *b b*. These flanges catch and engage projecting lips *c c*, which form the edges of the lower side of the bearing-block F, as seen in Fig. 1, and thus secure it in place.

In order to preserve the elastic power of the curved springs A A and increase their efficiency, I combine therewith an auxiliary spring of india-rubber or its equivalent, which I place under the bearing end of the lever in the simple spring, Fig. 2, or under the central bearing-block in the compound spring, Figs. 1, 3, and 4. A spiral, helical, or other form of metallic spring may of course be substituted for that of india-rubber, herein described, as shall be found most convenient and desirable.

I contemplate the combination of any convenient number of plates A A, of any suitable degree of curvature, in the construction of my springs, and will arrange them in series or groups of two, three, four, or more at pleasure, a slight change in the form of the central bearing-block, F, being in such case alone necessary.

Having thus fully described my invention, what I claim therein as new, and desire to secure by Letters Patent, is—

1. Securing one end of a curved spring composed of one or more C-shaped plates to a bed-plate, while the opposite end of the same is received into a pocket in a curved overarching bearer, E, or lever G, which is connected with a bearing-block, F, or an arm, K, substantially in the manner herein set forth.

2. When a C-shaped metallic spring composed of one or more plates is arranged and combined with a bearing-block, F, or arm K, and a curved overarching bearer or lever, as described, combining an auxiliary spring therewith, substantially as herein set forth.

The foregoing specification of my new and improved reflex car-spring signed by me this 15th day of June, A. D. 1863.

RICHD. VOSE.

In presence of—

JOHN B. SPAULDING,

A. L. BUTLER.